

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A multilayer coating for a carbon-containing component, the coating comprising at least two layers, wherein each of said layers comprises a material selected from the group consisting of:

non-stoichiometric compounds of silicon and carbon;
5 ~~non-stoichiometric silicon and oxygen;~~
 ~~non-stoichiometric silicon and nitrogen~~
 compounds of silicon, oxygen, and carbon;
 compounds of silicon, oxygen and nitrogen;
 compounds of silicon, nitrogen, and carbon;
10 compounds of silicon, oxygen, nitrogen, and carbon; and
 silicon; ~~the coating being halogen-free.~~

2. (Withdrawn) The coating of claim 1, wherein the material is non-stoichiometric silicon and carbon.

3. (Withdrawn) The coating of claim 1, wherein the material is non-stoichiometric silicon and oxygen.

4. (Withdrawn) The coating of claim 1, wherein the material is non-stoichiometric silicon and nitrogen.

5. (Currently amended) The coating of claim 1, wherein the material is a compound of silicon, oxygen, and carbon carbon-containing component comprises a carbon-carbon composite material.

6. (Withdrawn) The coating of claim 1, wherein the material is a compound of silicon, oxygen, and nitrogen.

7. (Withdrawn) The coating of claim 1, wherein the material is a compound of silicon, nitrogen, and carbon.

8. (Withdrawn) The coating of claim 1, wherein the material is silicon.

9. (Withdrawn) The coating of claim 1, wherein the material is a compound of silicon, oxygen nitrogen, and carbon.

10. (Currently amended) The coating of ~~claim 1~~ claim 5, wherein the coating includes multiple layers, at least one of the layers being made of the material selected from the group carbon-containing component comprises a plate-fin heat exchanger.

11. (Original) The coating of claim 1 wherein the coating has a graded composition through its thickness.

12. (Canceled)

13. (Currently amended) A multilayer coating for a carbon-containing component, the coating comprising at least two layers, wherein each of said layers comprises a material selected from the group consisting of:
silicon (Si);

5 silicon oxide (SiO_x);
 silicon carbide (SiC_y); silicon oxycarbide (SiO_xC_y);
 silicon nitride (SiN_z);
 silicon oxynitride (SiO_xN_z);
 silicon carbonitride (SiC_yN_z); and
10 silicon oxycarbonitride ($\text{SiO}_x\text{C}_y\text{N}_z$);
 wherein $x < 2$, $y < 1$ and $z < 4/3$, and at least one of x , y , and z is
greater than zero; and wherein the coating is halogen free.

Claims 14-21 (Canceled)

22. (New) A coating for a carbon-containing component, wherein said coating comprises at least one material selected from the group consisting of:

5 non-stoichiometric compounds of silicon and carbon;
 non-stoichiometric compounds of silicon and oxygen;
 non-stoichiometric compounds of silicon and nitrogen;
 compounds of silicon, oxygen, and carbon;
 compounds of silicon, oxygen, and nitrogen;
 compounds of silicon, nitrogen, and carbon;
 compounds of silicon, oxygen, nitrogen, and carbon; and
10 silicon,
 wherein said carbon-containing component comprises a carbon-carbon composite material.

23. (New) The coating of claim 22, wherein said coating comprises at least two layers, wherein each of said layers comprises a material selected from said group.

24. (new) The coating of claim 23, wherein each of said layers comprises a compound selected from the group consisting of silicon carbide

(SiC_y); silicon oxycarbide (SiO_xC_y); silicon carbonitride (SiC_yN_z); and silicon oxycarbonitride ($\text{SiO}_x\text{C}_y\text{N}_z$), wherein $x < 2$, $y < 1$ and $z < 4/3$, and at least one of 5 x , y , and z is greater than zero.

25. (New) The coating of claim 24, wherein the carbon (C) in said compound is chemically bound.

26. (New) The coating of claim 22, wherein said carbon-containing component comprises a plate-fin heat exchanger.

27. (New) The coating of claim 22, wherein said coating is applied directly to a surface of said carbon-containing component.